7-1-2009

Journal Self-Citation XX: Citations and the Question of Fit

Peter Trkman

University of Ljubljana, peter.trkman@ef.uni-lj.si

Follow this and additional works at: <https://aisel.aisnet.org/cais>

Recommended Citation

Trkman, Peter (2009) "Journal Self-Citation XX: Citations and the Question of Fit," *Communications of the Association for Information Systems*: Vol. 25 , Article 20.

DOI: 10.17705/1CAIS.02520

Available at: <https://aisel.aisnet.org/cais/vol25/iss1/20>

This material is brought to you by the AIS Journals at AIS Electronic Library (AISeL). It has been accepted for inclusion in Communications of the Association for Information Systems by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Communications of the Association for Information Systems

CAIS

Journal Self-Citation XX: Citations and the Question of Fit

Peter Trkman

University of Ljubljana, Faculty of Economics

peter.trkman@ef.uni-lj.si

Abstract:

This paper reviews several reasons why a number of self-references in a journal paper may indicate the fit of a paper to the scope of a journal. It shows how the calculation of impact factors and their thoughtless use for promotion/funding can encourage unethical behavior of editors and reviewers. Those actions may considerably hinder the objectiveness of scientific research and compromise the quality of search engines, such as Google Scholar, that use the number of citations as an important source for ranking results.

Keywords: citations, impact factor, research evaluation

Volume 25. Article 20. pp. 165-170. July 2009

I. NUMBER OF CITATIONS AND THE QUESTION OF "FIT"

To get something straight from the beginning: I do share the overwhelming response to Paul Gray's questions about the (un)ethical behavior of editors and reviewers of some journals. The request to include a certain number of self references¹ as a condition for acceptance (from the journal or even from a reviewer) is both unethical and unworthy of any journal in any field.

However, there is a valid reason why an editor may expect that (on average, not in every single case) papers submitted to his or her journal will contain a relatively large percentage of self-references. To put it more scientifically: while there should not be a casual relationship between the number of references and the likelihood of acceptance/rejection of the paper, there may be a certain correlation between the two variables. Why?

It is common sense to submit your paper to the journal you follow regularly. If you do not follow that journal, it is also common sense to browse through the last few volumes to obtain a better idea of the style, methodological approaches, and the content of the papers that are normally published by that journal. In this process it is likely that the researcher will find several interesting papers relevant to his or her work. Those papers will then be used in preparing his or her own paper. If the researcher was unable to find any relevant papers, then it is likely that the paper is not being submitted to the right journal.

The consequence of such action is that papers previously published in the journal receive a form of preferential treatment – they are more likely to be read, reviewed, and taken into account when preparing a paper. Is that necessarily a bad thing? To be honest, nobody reads the whole body of knowledge in his or her area. A brief example: Google Scholar finds 4250 papers with the search term “business process management” in the period 2007-2009 alone.

We all have to be selective and we all (even before scanning the paper) subconsciously assess the likelihood that the paper will be of interest. The journal itself is certainly important in this assessment. For example, I usually ignore anything published in conference proceedings (except the last few years of the world leading conferences in the field) and publishers whom I consider to be vanity publishers.

Assuming my preferences are widespread, authors give top journals in the field and the target journal preference. The logic for top journals is clear: they are likely to contain world leading research. The logic for reviewing the potential target journal is to find the most appropriate journal for my research paper. That certainly means that this journal previously published several relevant and high quality papers on my topic in recent years.

Example: Assume a paper contains 50 references but none from the target journal. Why does the author believe that their paper will best fit this journal and not one of the others? Unless most of the references are from A/A+ journals, the paper itself is not good enough for these journals, and the authors are just searching for a “quick & easy publication.” I see no real reason for that. Although this claim is true in general, certain exceptions may apply.

Does demand for “fit” shut journals off from publishing groundbreaking research and innovation? I don't think so. It may be true that a paper may contain only a few of references while having an immense effect in the field of science. For example, a famous paper by Albert Einstein [Einstein et al. 1935] does not contain a single reference but was itself cited 5,770 times according to Google Scholar. However, I doubt this outcome is likely in the social sciences where mostly incremental steps are made. The exceptions are sometimes “first” papers that open up a completely new topic of study.

To summarize: a relatively high number of self references does not mean that a paper will fit the journal to which it is submitted, but the lack of such references may indicate a likely misfit.

¹ For the purpose of this paper, self references are defined as references to other papers in the journal in which an article is published.

II. WHY ARE CITATIONS IMPORTANT?

It is clear that simply adding five new self references will not do anything to improve fit. Therefore, why would any editor bother whether an author includes three or five self references out of e.g., a total of 50 references? How could a requirement as absurd as this be made a requisite for acceptance? Such requests are not really new. As far back as 1996 the journal *Leukemia* wrote a letter to authors of submitted articles with the request “we kindly ask you to add to references of articles published in *Leukemia* to your present article” (Russell-Edu 2003).

The reason may lie in an attempt to inflate the journal impact factor. The median value in our field is around 0.7. For example, *Information Society* with an impact of 0.719 is ranked 27th out of 56 journals in the “information science & library science” category. If the editor “assures” that each paper has at least one self reference to the papers from the last two years, that impact would more than double.

This policy can also backfire. A typical example is *Industrial Management & Data Systems* journal, the impact factor of which has increased from 0.061 in 2000 to 1.942 in 2005. This gain presumably made it a “top journal” in the field of industrial engineering (First out of 33 ranked) and one of the best in computer science (14th out of 83 ranked). However, due to the significant effect of self-citations on the impact factor of that journal, the metrics for this title were not published in the 2006 and 2007 Journal Citations Reports. The journal had a self-citation rate of well over 80 percent. This level of self-citation can have a profound effect on the ranking of the journal in its category and distorts the journal's true participation in the scholarly literature of its subject (Herrmann 2007).

III. THE ROLE OF IMPACT FACTORS

The problem does not lie with Thomson Reuters, the firm publishing impact factors. The company simply offers services considered valuable by its customers. Although the impact factor calculation has a number of issues (e.g., the main one is that only the citations in two years after publication of the originating paper are counted [Garfield 1994; Harzing and van der Wal 2008; Moed et al., 1999]) it still provides a kind of benchmark to the researchers. The problem is over reliance on such rankings to judge the research output. As is often the case, technologies may be used wisely or irresponsibly. Quite often, persons responsible for research performance evaluation prefer “quick and dirty” bibliometric analyses, whereas, better quality measures are available. Specifically those analysis should only be used in combination with qualitative peer review [Weingart 2005].

Example: Our system for research funding/promotion at University of Ljubljana considers the journals in the first half of the rankings as being considerably more valuable than those in the second half. An absurd consequence: when our paper [Trkman et al., 2007] for one of the SSCI ranked journals was accepted and published in 2007, the journal was ranked 38th out of 78 in the management category. When the 2007 rankings were calculated in summer 2008, the journal's impact factor was virtually the same. However, the ranking dropped to 43th out of 81. Since the impact factors are so important to the authors, the editors may be more inclined to try to pump those ratings.²

Another reason for the attempt to increase self-citations may be less obvious and was not mentioned so far. It is simple and potentially even more dangerous. Google Scholar is increasingly being used for searching the scientific literature. I was unable to find any statistics for our research area, but there is no reason to believe that the situation differs much from medicine. There, the number of searches for medical scientific papers on Google Scholar has exceeded searches on Pubmed, a service of the [U.S. National Library of Medicine](#) [Steinbrook 2006].

One of the main characteristics of Google Scholar rankings is that the most cited documents are listed first, thus putting the most cited papers on the top of the list [Bazilchuk 2005]. This sorting is useful if we assume that the number of citations also indicate the quality/relevance/innovation of the research work.

However, a well known problem for search engines may appear: link farms. Building link farms is a technique that can deteriorate link based ranking algorithms. A link farm is a network of web sites which are densely connected with one another [Wu and Davison 2005]. While this technique is usually used for increasing the rank of a web page, certain editors may be attempting to do the same for their journals. The logic is clear. There is at least a bias in people's searches; they tend to click on first listed items. Thus search engines could misleadingly over promote an initially popular page by placing it at the top of the results list [Keane et al., 2008]. While the quoted research investigated the search for Web pages, we can assume that the pattern of searching for scientific papers is similar.

² However, if all the editors pump the ratings the same amount, the net result is merely to shift the rating numbers rather than any journal gaining advantage in ranking.

In such a way, the editors are trying to build a kind of unjustified virtuous circle. The papers that are cited more are closer to the top of search engines lists. As a result, they are read more often and hence are cited even more. Thus, the scientific objectivity can be compromised not only at the single paper level but also in future research that is performed after a given paper is published.

IV. CONCLUSIONS

As always, it is certainly beneficial to raise the awareness of such ethical issues. First, awareness and public contempt may dissuade some editors from such actions. Second, it may encourage the development of better ranking methods that would make such actions unnecessary. Nevertheless, people (either authors or editors) will always find a way to maximize their benefits in an undesired way for the system as a whole.

Therefore, this is a continuous struggle, especially since performance measurement in research is particularly difficult because effort levels may not be observable and success can be assessed only after long delays [Loch and Tapper 2002].

As a final thought. In order to improve the system, it should not be forgotten that, in general, the selection and relative importance of each measure is contingent on strategic priorities [Hoque 2004]. What are the main strategic priorities of scientific research? This subject could well be a topic for another special set of papers.

REFERENCES

- Editor's Note:* The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web can gain direct access to these linked references. Readers are warned, however, that:
1. These links existed as of the date of publication but are not guaranteed to be working thereafter.
 2. The contents of Web pages may change over time. Where version information is provided in the References, different versions may not contain the information or the conclusions referenced.
 3. The author(s) of the Web pages, not AIS, is (are) responsible for the accuracy of their content.
 4. The author(s) of this article, not AIS, is (are) responsible for the accuracy of the URL and version information.
- Bazilchuk, N. (2005). "Google Scales the Ivory Tower," *Conservation in Practice* 6 (1), pp. 36-38.
- Einstein, A., B. Podolsky, and Rosen, N. (1935). "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?," *Physical Review* 47, pp. 777-780.
- Garfield, E. (1994). The Thomson Scientific Impact Factor, Thomson Scientific http://thomsonreuters.com/products_services/science/free/essays/impact_factor/.
- Harzing, A.-W. and R. Van Der Wal (2008). "A Google Scholar H-Index for Journals: An Alternative Metric to Measure Journal Impact in Economics and Business," *Journal of the American Society for Information Science and Technology* 60(1), pp. 41-46.
- Herrmann, K. (2007). e-mail: Technical Support Form. Personal Communication on September, 18 2007.
- Hoque, Z. (2004). "A Contingency Model of the Association Between Strategy, Environmental Uncertainty and Performance Measurement: Impact on Organizational Performance," *International Business Review* 13(4), pp. 485-502.
- Keane, M. T., M. O'Brien, and B. Smyth (2008). "Are People Biased in Their Use of Search Engines?," *Communications of the ACM* 51(2), pp. 49-52.
- Loch, C. and S. Tapper (2002). "Implementing a Strategy-Driven Performance Measurement System for an Applied Research Group," *Journal of Product Innovation Management* 19(3), pp. 185-198.
- Moed, H. F., T. N. Van Leeuwen, and J. Reedijk (1999). "Towards Appropriate Indicators of Journal Impact," *Scientometrics* 46(3), pp. 575-589.
- Russell-Edu, W. (2003). "The Impact Factor: Your Job May Depend on It – but do You Know What It is?," *CancerFutures* 2(July-August), pp. 171-175.

Steinbrook, R. (2006). "Searching for the Right Search — Reaching the Medical Literature," *The New England Journal of Medicine* 354(1), pp. 4-7.

Trkman, P., M. Indihar Štemberger, J. Jaklič, and A. Groznik (2007). "Process Approach to Supply Chain Integration," *Supply Chain Management - An International Journal* 12(2), pp. 116-128.

Weingart, P. (2005). "Impact of Bibliometrics upon the Science System: Inadvertent Consequences?," *Scientometrics*, 62(1), pp. 117-131.

Wu, B. and B. D. Davison, B. D. (2005). "Identifying Link Farm Spam Pages," *International World Wide Web Conference* Chiba, Japan, ACM New York, NY, USA.

ABOUT THE AUTHOR

Peter Trkman is assistant professor in the Faculty of Economics of the University of Ljubljana. His research interests encompass e-government, telecommunications, technology adoption and various aspects of supply chain, business process and operations management. He has participated in several national and international projects and published over 60 papers/book chapters, including papers in *Computers & Operations Research*, *European Journal of Operational Research*, *International Journal of Production Economics*, *International Journal of Production Research*, *Journal of Computer Information Systems*, *Supply Chain Management – An International Journal*, *Technology Forecasting & Social Change* and *Telecommunications Policy*.

He serves as a reviewer of numerous journals. As a reviewer, he never asked the author to include his own paper in the reference list. He did follow the recommendation of a reviewer to include two of the reviewers' papers when publishing his first refereed paper.

Copyright © 2009 by the Association for Information Systems. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and full citation on the first page. Copyright for components of this work owned by others than the Association for Information Systems must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists requires prior specific permission and/or fee. Request permission to publish from: AIS Administrative Office, P.O. Box 2712 Atlanta, GA, 30301-2712, Attn: Reprints; or via e-mail from ais@aisnet.org.

Communications of the Association for Information Systems

ISSN: 1529-3181

EDITOR-IN-CHIEF

Ilze Zigurs
University of Nebraska at Omaha

AIS SENIOR EDITORIAL BOARD

Guy Fitzgerald Vice President Publications Brunel University	Ilze Zigurs Editor, CAIS University of Nebraska at Omaha	Kalle Lyytinen Editor, JAIS Case Western Reserve University
Edward A. Stohr Editor-at-Large Stevens Institute of Technology	Blake Ives Editor, Electronic Publications University of Houston	Paul Gray Founding Editor, CAIS Claremont Graduate University

CAIS ADVISORY BOARD

Gordon Davis University of Minnesota	Ken Kraemer University of California at Irvine	M. Lynne Markus Bentley College	Richard Mason Southern Methodist University
Jay Nunamaker University of Arizona	Henk Sol University of Groningen	Ralph Sprague University of Hawaii	Hugh J. Watson University of Georgia

CAIS SENIOR EDITORS

Steve Alter University of San Francisco	Jane Fedorowicz Bentley College	Jerry Luftman Stevens Institute of Technology
--	------------------------------------	--

CAIS EDITORIAL BOARD

Michel Avital University of Amsterdam	Dinesh Batra Florida International University	Indranil Bose University of Hong Kong	Ashley Bush Florida State University
Fred Davis University of Arkansas, Fayetteville	Evan Duggan University of the West Indies	Ali Farhoomand University of Hong Kong	Sy Goodman Georgia Institute of Technology
Mary Granger George Washington University	Ake Gronlund University of Umea	Douglas Havelka Miami University	K.D. Joshi Washington State University
Chuck Kacmar University of Alabama	Michel Kalika University of Paris Dauphine	Julie Kendall Rutgers University	Claudia Loebbecke University of Cologne
Paul Benjamin Lowry Brigham Young University	Sal March Vanderbilt University	Don McCubbrey University of Denver	Fred Niederman St. Louis University
Shan Ling Pan National University of Singapore	Jackie Rees Purdue University	Jia-Lang Seng National Chengchi University	Paul Tallon Loyola College, Maryland
Thompson Teo National University of Singapore	Craig Tyran Western Washington University	Chelley Vician Michigan Technological University	Rolf Wigand University of Arkansas, Little Rock
Vance Wilson University of Toledo	Peter Wolcott University of Nebraska at Omaha	Yajiong Xue East Carolina University	

DEPARTMENTS

Global Diffusion of the Internet Editors: Peter Wolcott and Sy Goodman	Information Technology and Systems Editors: Sal March and Dinesh Batra
Papers in French Editor: Michel Kalika	Information Systems and Healthcare Editor: Vance Wilson

ADMINISTRATIVE PERSONNEL

James P. Tinsley AIS Executive Director	Vipin Arora CAIS Managing Editor University of Nebraska at Omaha	Copyediting by Carlisle Publishing Services
--	--	---